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EXAMINER
SHELEHEDA, JAMES R

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/493,405	MILLET ET AL.
	Examiner	Art Unit	
	James Sheleheda	2617	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 October 2005</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-27</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-11 and 13-27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Data-Over-Cable Service Interface Specifications (DOCSIS) (SP-

RFI-I05-991105) (of record) in view of Schmidt et al. (Schmidt) (5,939,887) (of record).

As to claim 1, DOCSIS discloses a method of testing a cable network (using

range requests; see table 7-5 on page 103), using one or more cable modems, while

allowing live data traffic at an original frequency (wherein plural modems share a

frequency channel and are assigned time slots; see DOCSIS at page 17, lines 31-36

and wherein range requests are assigned to specific time slots in transmission; page

94, lines 21-23), the method comprising:

(a) identifying a group of time increments (mini-slots; page 48, lines 9-16),

associated with live data transmission (periodic range requests taking place after the

modem is connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig.

7.13 on page 113), during which cable modems on the network are not scheduled to

transmit data (wherein a transmission region is assigned to a particular cable modem

for performing a range request; page 94, lines 21-23 and page 107, lines 15-20);

(b) instructing a first one of the one or more cable modems to send a first test signal (range request; page 107, lines 15-20) of a first frequency (periodic range requests taking place on the current modem frequency; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113) at a first power (wherein range request power adjustments begin at a minimum value; page 107, lines 3-7) during a first one of the time increments (wherein the CMTS must periodically assign a time period to the modem to perform a range request; page 107, lines 15-20) while the first cable modem is on line and engaged in live data transmission (periodic range requests taking place after the modem is connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113) at the original frequency (wherein the **instruction** to perform range request testing occurs while the modem is continuing to transmit over it's current frequency; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113);

(c) measuring the power of the first signal received at a specified location on the cable network (wherein the power must be measured to see if it is within the desired range or must be corrected; see table 7-13 on page 113; page 94, lines 15-19);

(d) instructing the first cable modem to send a second test signal of a second frequency during an available time increment (wherein the CMTS tells the cable modem to switch to a different channel and send another range request; page 114, line 22-page 116, line 5) while the first cable modem is on line and engaged in live data transmission (during a periodic range request taking place after the modem is connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113) at the original frequency (wherein the **instruction** to switch channels and

perform range request testing occurs while the modem is transmitting over the original

frequency; page 107 at 7.2.4.2, page 112 at 7.2.12, Fig. 7.13 on page 113,page 114,

line 22- page 116, line 5);

(e) measuring the power of the second signal received at a specified location on

the cable network (wherein the power must be measured to see if it is within the desired

range or must be adjusted; see table 7-13 on page 113; page 94, lines 15-19),

wherein the first and second frequencies belong to different transmission

channels (wherein the CMTS tells the cable modem to switch to a different channel and

send another range request; page 114, line 22- page 116, line 5).

While DOCSIS discloses measuring the power of the first modem at the first and

second frequencies, it fails to specifically disclose recording a power versus frequency

spectrum.

In an analogous art, Schmidt discloses a system for testing a cable network (Fig.

2; column 4, lines 10-25) wherein the cable headend will use a spectrum analyzer to

measure the signal magnitude (power) levels at each frequency (power versus

frequency spectrum, see Fig. 3, step 64; column 7, lines 17-29) and then record the

measured values (Fig. 3, step 80; column 7, lines 64-67) for the benefit of allowing the

measured values to be recalled and displayed at a later time (column 8, lines 5-7).

It would have been obvious to one of ordinary skill in the art to modify the

DOCSIS method to include recording a power versus frequency spectrum, as taught by

Schmidt, for the typical benefit of allowing the power and frequency values acquired

from testing a cable modem to be recalled and displayed at a later time.

As to claim 2, DOCSIS and Schmidt disclose at the specified location (the CMTS), measuring the power of a plurality of additional signals (range requests) generated by the first cable modem at a plurality of additional frequencies (wherein additional range requests are transmitted at adjusted frequencies until the ranging is successful; see DOCSIS at page 94, lines 12-27).

As to claim 3, DOCSIS and Schmidt disclose wherein the plurality of additional signals generated by the first cable modem are sent during a plurality of additional time increments (wherein each range request has it's own assigned time interval; see DOCSIS at page 107, lines 15-20).

As to claim 4, DOCSIS and Schmidt disclose, at a specified location (at the CMTS), measuring (wherein the power must be measured to see if it is within the desired range or must be further adjusted; see DOCSIS at table 7-13 on page 113; page 94, lines 15-19) and recording a frequency versus power spectrum (see Schmidt at Fig. 3, step 80; column 7, lines 64-67) of a second one of the cable modems (wherein range requesting must be performed for all modems; page 107, lines 15-20) during available time increments (wherein a transmission region is assigned to a particular cable modem for performing a range request; page 94, lines 21-23 and page 107, lines 15-20).

As to claim 5, DOCSIS and Schmidt disclose

(i) determining a deviation between the measured power of the first signal at the specified location (wherein the power must be measured to see if it is within the desired range or must be further adjusted; see DOCSIS at table 7-13 on page 113; page 94, lines 15-19), and an expected value of the measured power at that location (wherein the deviation between the received power and the desired power is determined and transmitted to the modem; see DOCSIS at 21-22);

(ii) instructing a first cable modem to send another signal at the first frequency, but this time at a power adjusted from the first power (the CMTS sends a range response instructing just the power to be adjusted; see DOCSIS at page 94, lines 15-27) by the magnitude of the deviation (wherein the power adjust information is the deviation between the received power and the desired power; see DOCSIS at page 73, lines 21-22); and

(iii) measuring (wherein the power must be measured to see if it is within the desired range or must be further adjusted; see DOCSIS at table 7-13 on page 113; page 94, lines 15-19) and recording the power of the other signal (see Schmidt at Fig. 3, step 80; column 7, lines 64-67), at the specified location on the cable network (wherein measurements are taken at the CMTS in the headend; see DOCSIS at Page 3, Fig. 1-2; page 73, lines 21-22 and page 94, lines 15-19).

As to claim 6, DOCSIS and Schmidt disclose repeating (i)-(iii) a number of times (wherein the ranging request be periodically repeated; page 71, lines 13-15) to obtain

statistical data (wherein storing the repeated ranged requests inherently comprises

statistical data).

As to claim 7, DOCSIS and Schmidt disclose wherein the testing determines

whether the cable network is in compliance with a cable network standard (wherein

range request testing verifies compliance with tolerance limits set out in the DOCSIS

standard; see DOCSIS page 113, Fig. 7-13).

As to claim 8, DOCSIS and Schmidt disclose wherein the testing determines

whether the cable network meets DOCSIS requirements (wherein range request testing

verifies compliance with tolerance limits set out in the DOCSIS standard; see DOCSIS

page 113, Fig. 7-13), and wherein instructing the first cable modem to send a first signal

comprises sending a DOCSIS ranging request from the first cable modem (wherein the

modem sends a range request upon receipt of a Station Maintenance region; see

DOCSIS at page 94, lines 21-23).

As to claim 9, DOCSIS and Schmidt disclose identifying a range of frequencies

(an upstream channel which inherently covers a ranges) at which the one or more cable

modems are to send signals (wherein a channel is identified for a cable modem to send

signals over; see DOCSIS at page 100, lines 9-18).

As to claim 10, DOCSIS and Schmidt disclose wherein the range of frequencies spans at least a substantial portion of the upstream bandwidth allotted to cable modems (wherein the range of frequencies is across plural channels; page 114, line 22- page 116, line 5).

As to claim 11, DOCSIS and Schmidt disclose wherein the range of frequencies includes one or more frequencies in a frequency sub-band (wherein the modem uses one of the plurality of possible upstream channels; see DOCSIS at page 100, lines 9-18) over which cable modems on the cable network are currently sending data (wherein plural modems share the channel and are assigned time slots; see DOCSIS at page 17, lines 31-36).

As to claim 12, DOCSIS discloses a method of testing a cable network (using range requests; see table 7-5 on page 103), using one or more cable modems, while allowing live data traffic at an original frequency (wherein plural modems share a channel and are assigned time slots; see DOCSIS at page 17, lines 31-36 and wherein range requests are assigned to specific time slots in transmission; page 94, lines 21-23), the method comprising:

(a) identifying a group of time increments (mini-slots; page 48, lines 9-16), associated with live data transmission (periodic range requests taking place after the modem is connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113), during which cable modems on the network are not scheduled to

transmit data at the original frequency (wherein a transmission region is assigned to a

particular cable modem for performing a range request; page 94, lines 21-23 and page

107, lines 15-20);

(b) instructing a first one of the one or more cable modems to send a first test

signal (range request; page 107, lines 15-20) of a first frequency (wherein the CMTS

sends UCD messages to determine the transmission frequency of the modem; page

100, lines 3-18) at a first power (wherein range request power adjustments begin at a

minimum value; page 107, lines 3-7) during a first one of the time increments (wherein

the CMTS must periodically assign a time period to the modem to perform a range

request; page 107, lines 15-20) while the first cable modem is on line and engaged in

live data transmission (periodic range requests taking place after the modem is

connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on

page 113);

(c) measuring the power of the first test signal received at a specified location on

the cable network (wherein the power must be measured to see if it is within the desired

range or must be corrected; see table 7-13 on page 113; page 94, lines 15-19);

(d) instructing the first cable modem to send a second test signal of a second

frequency during an available time increment (wherein the CMTS tells the cable modem

to switch to a different channel and send another range request; page 114, line 22-

page 116, line 5) at the original frequency (wherein the **instruction** to switch channels

and perform range request testing occurs while the modem is transmitting over the

original frequency; page 107 at 7.2.4.2, page 112 at 7.2.12, Fig. 7.13 on page 113,page 114, line 22- page 116, line 5);

(e) measuring the power of the second signal received at the specified location on the cable network (wherein the power must be measured to see if it is within the desired range or must be adjusted; see table 7-13 on page 113; page 94, lines 15-19),

wherein the one or more cable modems are selected by a method comprising:

identifying separate geographic regions of the cable network for testing (cable modems at separate customer locations; page 2); and

selecting at least one cable modem at each geographic location (wherein each modem at each location must perform ranging; see DOCSIS at page 107, lines 15-20).

While DOCSIS discloses measuring the power of the first modem at the first and second frequencies, it fails to specifically disclose recording a power versus frequency spectrum.

In an analogous art, Schmidt discloses a system for testing a cable network (Fig. 2; column 4, lines 10-25) wherein the cable headend will use a spectrum analyzer to measure the signal magnitude (power) levels at each frequency (power versus frequency spectrum, see Fig. 3, step 64; column 7, lines 17-29) and then record the measured values (Fig. 3, step 80; column 7, lines 64-67) for the benefit of allowing the measured values to be recalled and displayed at a later time (column 8, lines 5-7).

It would have been obvious to one of ordinary skill in the art to modify the DOCSIS method to include recording a power versus frequency spectrum, as taught by

Schmidt, for the typical benefit of allowing the power and frequency values acquired

from testing a cable modem to be recalled and displayed at a later time.

As to claim 13, DOCSIS discloses a method of testing a cable network (using

range requests; see table 7-5 on page 103), while allowing live data traffic at an original

frequency (wherein plural modems share a channel and are assigned time slots; see

DOCSIS at page 17, lines 31-36 and wherein range requests are assigned to specific

time slots in transmission; page 94, lines 21-23), the method comprising:

(a) instructing a first cable modem to send test signals (range requests; page

107, lines 15-20) of a first frequency (1. wherein the CMTS sends UCD messages to

determine the transmission frequency of the modem; page 100, lines 3-18; 2. wherein

the CMTS tells the cable modem to adjust it's frequency and send another range

request; page 94, lines 15-19 and 25-27) and power (wherein range request power

adjustments begin at a minimum value and increment in set values; page 107, lines 3-7)

during a group of time increments (mini-slots; page 48, lines 9-16) at which times cable

modems on the network are not scheduled to transmit data (wherein a transmission

region is assigned to a particular cable modem for performing a range request; page 94,

lines 21-23 and page 107, lines 15-20) while the first cable modem is on line and

engaged in live data transmission (periodic range requests taking place after the

modem is connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig.

7.13 on page 113) at the original frequency (wherein the **instruction** to perform range

request testing occurs while the modem is transmitting over the original frequency; page

107 at 7.2.4.2, page 112 at 7.2.12, Fig. 7.13 on page 113,page 114, line 22- page 116, line 5);

(b) measuring the power of the signal from the first cable modem (wherein the power must be measured to see if it is within the desired range or must be corrected; see table 7-13 on page 113; page 94, lines 15-19);

(c) instructing a second cable modem (wherein range requesting must be performed for all modems; page 107, lines 15-20) to send test signals of a second frequency (1. wherein the CMTS sends UCD messages to determine the transmission frequency of the modem; page 100, lines 3-18; 2. wherein the CMTS tells the cable modem to adjust it's frequency and send another range request; page 94, lines 15-19 and 25-27) and power (wherein range request power adjustments begin at a minimum value and increment in set values; page 107, lines 3-7) during a second group of time increments (mini-slots; page 48, lines 9-16) at which times cable modems on the network are not scheduled to transmit data (wherein a transmission region is assigned to a particular cable modem for performing a range request; page 94, lines 21-23 and page 107, lines 15-20) while the second cable modem is on line and engaged in live data transmission (periodic range requests taking place after the modem is connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113) at the original frequency (wherein the **instruction** to perform range request testing occurs while the modem is transmitting over the original frequency; page 107 at 7.2.4.2, page 112 at 7.2.12, Fig. 7.13 on page 113,page 114, line 22- page 116, line 5); and

(d) measuring the power of the signal from the second cable modem (wherein the power must be measured to see if it is within the desired range or must be further adjusted; see table 7-13 on page 113; page 94, lines 15-19),

wherein the first and second frequencies belong to different transmission channels (wherein different cable modems are assigned to different upstream channels which are available at initialization; page 100).

While DOCSIS discloses measuring the power of the signals from the first and second modems, it fails to specifically disclose recording the power.

In an analogous art, Schmidt discloses a system for testing a cable network (Fig. 2; column 4, lines 10-25) wherein the cable headend will use a spectrum analyzer to measure the signal magnitude (power) levels at each frequency (Fig. 3, step 64; column 7, lines 17-29) and then record the measured values (Fig. 3, step 80; column 7, lines 64-67) for the benefit of allowing the measured values to be recalled and displayed at a later time (column 8, lines 5-7).

It would have been obvious to one of ordinary skill in the art to modify the DOCSIS method to include recording the power, as taught by Schmidt, for the typical benefit of allowing the power and frequency values acquired from testing a cable modem to be recalled and displayed at a later time.

As to claim 14, DOCSIS and Schmidt disclose wherein the signals from the first and second cable modems are measured at a single location on the cable network

(wherein the signals are measured at the CMTS; see DOCSIS at Page 3, Fig. 1-2; page

73, lines 21-22 and page 94, lines 15-19).

As to claim 15, DOCSIS and Schmidt disclose wherein the testing determines

whether the cable network is in compliance with requirements of DOCSIS (wherein

DOCSIS range requests verify compliance with DOCSIS tolerance limits; see DOCSIS

page 113, Fig. 7-13).

As to claim 16, DOCSIS and Schmidt disclose identifying a range of frequencies

(an upstream channel which inherently covers a ranges) at which the first and second

cable modems are to send signals (wherein a channel is identified for every cable

modem to send signals over; see DOCSIS at page 100, lines 9-18).

As to claim 17, DOCSIS and Schmidt disclose wherein the range of frequencies

spans at least a substantial portion of the upstream bandwidth allotted to cable modems

(wherein one of the upstream channels is allotted to the modem; see DOCSIS at page

100, lines 9-18).

As to claim 18, DOCSIS and Schmidt disclose wherein the range of frequencies

includes one or more frequencies in a frequency sub-band (wherein the modem uses

one of the plurality of possible upstream channels; see DOCSIS at page 100, lines 9-

18) over which cable modems on the cable network are currently sending data (wherein

plural modems share the channel and are assigned time slots; see DOCSIS at page 17, lines 31-36).

As to claim 19, DOCSIS discloses a cable network headend (Page 3, Fig. 1-2) allowing testing of the cable network (using range requests; see table 7-5 on page 103), the headend comprising:

(a) an amplitude detector that can measure, at a specified location in the cable network (at the CMTS), the amplitude of a signal received from a cable modem in the cable network (wherein a detector must be present in the headend for the power level of signals at the CMTS to be measured; Page 3, Fig. 1-2; page 73, lines 21-22 and page 94, lines 15-19);

(b) a MAC layer means (page 17, lines 23-39) for identifying a group of time increments (mini-slots; page 48, lines 9-16) associated with live data transmissions at an original frequency (periodic range requests taking place after the modem is connected with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113), during which cable modems on the cable network are not scheduled to transmit data (wherein a transmission region is assigned to a particular cable modem for performing a range request; page 94, lines 21-23 and page 107, lines 15-20); and

(c) test logic means (wherein some means must be present to perform the MAC range requests) for instructing a cable modem on the cable network to send test signals at at least two different frequencies (1. wherein the CMTS sends UCD messages to determine the transmission frequency of the modem; page 100, lines 3-18 and the cable

modem must then periodically transmit range requests at the frequency; page 107 at

7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113; 2. wherein the CMTS tells the

cable modem to then switch to a different channel and send another range request;

page 114, line 22- page 116, line 5) during one or more time increments (transmission

regions assigned to the cable modem for performing the range requests; page 94, lines

21-23 and page 107, lines 15-20) while the cable modem is on line and engaged in live

data transmission (periodic range requests taking place after the modem is connected

with the network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113), at

the original frequency (wherein the **instruction** to switch channels and perform range

request testing occurs while the modem is transmitting over the original frequency; page

107 at 7.2.4.2, page 112 at 7.2.12, Fig. 7.13 on page 113,page 114, line 22- page 116,

line 5),

wherein the first and second frequencies belong to different transmission

channels (wherein the CMTS tells the cable modem to switch to a different channel and

send another range request; page 114, line 22- page 116, line 5).

While DOCSIS discloses measuring the power of the signals at said different

frequencies, it fails to specifically disclose recording the power.

In an analogous art, Schmidt discloses a system for testing a cable network (Fig.

2; column 4, lines 10-25) wherein the cable headend will use a spectrum analyzer to

measure the signal magnitude (power) levels at each frequency (Fig. 3, step 64; column

7, lines 17-29) and then record the measured values (Fig. 3, step 80; column 7, lines

64-67) for the benefit of allowing the measured values to be recalled and displayed at a

later time (column 8, lines 5-7).

It would have been obvious to one of ordinary skill in the art to modify the

DOCSIS system to include recording the power, as taught by Schmidt, for the typical

benefit of allowing the power and frequency values acquired from testing a cable

modem to be recalled and displayed at a later time.

As to claim 20, DOCSIS and Schmidt disclose an upstream receiver (see

DOCSIS at page 3, Figure 1-2) in communication with the amplitude detector (wherein

measurements are made of received range requests at the CMTS; see DOCSIS at

Page 3, Fig. 1-2; page 73, lines 21-22 and page 94, lines 15-19); and

a downstream transmitter (see DOCSIS at page 3, Figure 1-2) in communication

with the MAC layer means (where MAC messages are sent transmitted to the cable

modems; see DOCSIS at page 17, lines 26-29).

As to claim 21, DOCSIS and Schmidt disclose wherein the test logic means

selects one or more cable modems in the cable network to generate signals (wherein

every cable modem is eventually selected to transmit; see DOCSIS at page 107, lines

15-20) at multiple frequencies (wherein a modem must adjust it frequency and transmit

another range request; see DOCSIS at page 94, lines 15-27).

As to claim 22, DOCSIS and Schmidt disclose wherein the test logic means selects multiple cable modems (wherein every cable modem is eventually selected to transmit; see DOCSIS at page 107, lines 15-20) and the individual cable modems reside at separate geographic regions (wherein every individual cable modem must reside at some separate geographic region, e.g. a subscribers home, a room in that home, or simply the physical location the modem itself).

As to claim 23, DOCSIS and Schmidt disclose wherein at least one of the frequencies at which the cable modem sends signals is within a frequency band (wherein the modem uses one of the plurality of possible upstream channels; see DOCSIS at page 100, lines 9-18) over which cable modems on the cable network are currently sending data (wherein plural modems share the channel and are assigned time slots; see DOCSIS at page 17, lines 31-36).

As to claim 24, DOCSIS and Schmidt disclose wherein the test logic means determines one power versus frequency spectra of one cable modem in the cable network (wherein the cable modem power is measured at a known frequency; see DOCSIS at page 73, lines 21-22, page 94, lines 15-19 and page 73, lines 10-11) whether the cable network complies with a cable network standard (wherein DOCSIS range requests verify compliance with DOCSIS tolerance limits; see DOCSIS page 113, Fig. 7-13).

As to claim 25, DOCSIS discloses a cable network headend (Page 3, Fig. 1-2)

allowing testing of the cable network (using range requests; see table 7-5 on page 103),

the headend comprising:

(a) an amplitude detector that can measure, at a specified location in the cable

network (at the CMTS), the amplitude of a signal received from a cable modem in the

cable network (wherein a detector must be present in the headend for the power level of

signals at the CMTS to be measured; Page 3, Fig. 1-2; page 73, lines 21-22 and page

94, lines 15-19);

(b) one or more processors (wherein a cable headend inherently contains a

processor) configured to

(i) identify a group of time increments (mini-slots; page 48, lines 9-16),

associated with live data transmissions at an original frequency (periodic range

requests taking place after the modem is connected with the network; page 107

at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113), during which cable

modems on the cable network are not scheduled to transmit data (wherein a

transmission region is assigned to a particular cable modem for performing a

range request; page 94, lines 21-23 and page 107, lines 15-20) and

(ii) to generate instructions to cause specific cable modems (wherein

specific modems receive their own ranging opportunity; page 107, lines 15-20)

on the cable network to transmit test signals of specified power and frequency

(wherein the CMTS tells the cable modems to adjust their frequency and power

to specified values and send a more range requests; page 94, lines 15-19 and

25-27) while the cable modems are on line and engaged in live data transmission

(periodic range requests taking place after the modem is connected with the

network; page 107 at 7.2.4.2, page 112 at 7.2.12 and Fig. 7.13 on page 113) at

the original frequency (wherein the **instruction** to perform range request testing

occurs while the modem is transmitting over the original frequency; page 107 at

7.2.4.2, page 112 at 7.2.12, Fig. 7.13 on page 113,page 114, line 22- page 116,

line 5),

    which signals can be measured by the amplitude detector (wherein the

power levels of the signals at the CMTS are measured; Page 3, Fig. 1-2; page

73, lines 21-22 and page 94, lines 15-19),

wherein the test frequencies belong to different transmission channels (wherein

different cable modems are assigned to different upstream channels which are available

at initialization; page 100).

    While DOCSIS discloses measuring power and frequency data for the specified

cable modems, it fails to specifically disclose memory to record the data.

    In an analogous art, Schmidt discloses a system for testing a cable network (Fig.

2; column 4, lines 10-25) wherein the cable headend will use a spectrum analyzer to

measure the signal magnitude (power) levels at each frequency (Fig. 3, step 64; column

7, lines 17-29) and then record the measured values (Fig. 3, step 80; column 7, lines

64-67) in memory (Fig. 2, 50) for the benefit of allowing the measured values to be

recalled and displayed at a later time (column 8, lines 5-7).

It would have been obvious to one of ordinary skill in the art to modify the

DOCSIS system to include memory to record the data, as taught by Schmidt, for the

typical benefit of allowing the power and frequency values acquired from testing a cable

modem to be recalled and displayed at a later time.

As to claim 26, DOCSIS and Schmidt disclose a transmitter (see DOCSIS at

page 3, Figure 1-2) and a receiver (see DOCSIS at page 3, Figure 1-2).

As to claim 27, DOCSIS and Schmidt disclose wherein the power and frequency

data are power versus frequency spectra (wherein the data is stored as a power versus

frequency spectrum; see Schmidt at Fig. 3, steps 64 and 80; column 7, lines 17-29 and

lines 64-67) over a range of upstream transmission frequencies for the specific cable

modems (wherein the measured values correspond to a plurality of received signals as

the cable modems adjust their frequency and power and send a plurality of range

requests; page 94, lines 15-19 and 25-27).

Response to Arguments

3.   Applicant's arguments filed 10/20/05 have been fully considered but they are not

persuasive.

a.   In response to applicant's arguments on page 7, it is noted that the current

claim language calls for *instructing* cable modems to transmit test signals while

the modems are engaged in live traffic at the original frequency.

In the case of DOCSIS, the *instructing* clearly takes place while the modems are engaged in live traffic *at the original frequency,* as it is the instruction itself which will tell the modems to switch to a different frequency (see page 107 at 7.2.4.2, page 112 at 7.2.12, Fig. 7.13 on page 113,page 114, line 22- page 116, line 5). The instructing step must happen at the original frequency (which the modem is currently transmitting at) as otherwise the modem would not receive the instruction.

Despite applicant's arguments, the current claim language does *NOT* require that the *cable modem* transmit test signals while engaged in live traffic at the original frequency. The current language actually simply recites that the *instructing* of the cable modem to transmit a test signal occur while the modem is engaged in live traffic at the original frequency. As indicated in the rejections and above, DOCSIS clearly meets this limitation.

b.   Applicant's argument that DOCSIS fails to teach multiple test frequencies on page 8 is not convincing as it has already been repeatedly indicated in the previous action and above that DOCSIS teaches **both** transmitting test signals at different frequencies within a channel **and** transmitting test signals over different transmission channels.

c.   On page 8, of applicant's response, applicant argues that DOCSIS does

not teach identifying separate geographic regions and selecting a cable modem

at each region.

In response, as indicated in the previous and current actions, DOCSIS

discloses "identifying separate geographic regions of the cable network for

testing" as every cable modem to be tested is identified and contained at a

separate geographic region (cable modems at separate customer locations; see

DOCSIS at page 2). Further, at least one cable modem is selected at each

geographic region is as every single modem is eventually selected and instructed

to perform range request testing (see DOCSIS at page 107, lines 15-20). This

clearly meets the broad claim limitations.

Conclusion

4.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

5.   The following are suggested formats for either a Certificate of Mailing or
Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with
all correspondence concerning this application or proceeding to establish a date of
mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in
such communication being considered as timely if the established date is within the
required period for reply. The Certificate should be signed by the individual actually
depositing or transmitting the correspondence or by an individual who, upon information
and belief, expects the correspondence to be mailed or transmitted in the normal course
of business by another no later than the date indicated.

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Sheleheda whose telephone number is (571) 272-7357. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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